

Chapter 18

Maintain and Replace Cables and Connectors

This chapter discusses the following topics related to maintaining and replacing the routing node's cables and connectors:

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Tools and Parts Required

To maintain and replace the cables and connectors, you need the following tools and parts:

Phillips (+) screwdrivers, numbers 1 and 2

Flat-blade (–) screwdriver; number 1

7/16-in. nut driver or pliers

Wire cutters

ESD grounding wrist strap

Cable Specifications

Table 14 on page 57 lists the specifications for the Routing Engine and PIC cables used in the routing node.

Replace Routing Engine External Cables

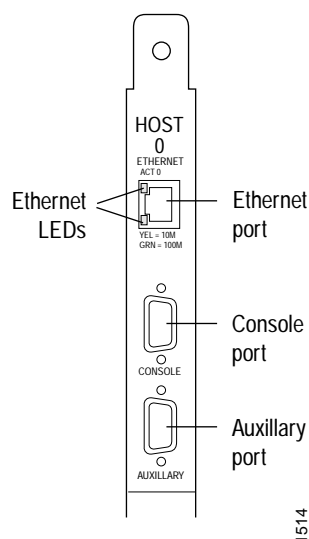
The CIP contains connectors for connecting the Routing Engines to a console, a network, an external management device, or an external alarm device (see Figure 91 and Figure 94). You can replace the following cables:

Replace the Console or Auxiliary Port Cable on page 208

Replace the Ethernet Management Cable on page 209

Replace Alarm Relay Cables on page 210

Figure 91: Routing Engine Ports on CIP



Replace the Console or Auxiliary Port Cable

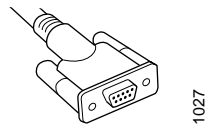
The Routing Engine management console cable connects to the serial port labeled CONSOLE, and the auxiliary cable connects to the serial port labeled AUXILIARY (see Figure 91). For cable specifications, see Table 14 on page 57.

To replace the console or auxiliary port cable, follow this procedure:

1. Locate an appropriate replacement cable and connector (see Figure 92).
2. Turn off the power switch on the external device connected to the routing node.
3. Loosen the screws on the connector and disconnect the cable you are replacing from the external device.
4. Loosen the screws on the connector and disconnect the cable you are replacing from the CIP.
5. Plug the female end of the replacement cable connector into the CONSOLE or AUXILIARY port, depending on which cable you are replacing.

6. Tighten the screws on the connector.
7. Connect the other end of the cable into the console or auxiliary device.
8. Tighten the screws on the connector.
9. Turn the power switch on the external device on.

Figure 92: Console and Auxiliary Serial Port Connector



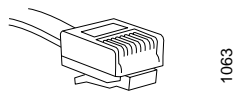
Replace the Ethernet Management Cable

The Routing Engine Ethernet cable connects the routing node to a network for out-of-band management through the ETHERNET port (see Figure 91). For cable specifications, see Table 14 on page 57.

To replace the Ethernet port cable, follow this procedure:

1. Locate an appropriate replacement cable and connector (see Figure 93).
2. Plug the Ethernet connector at either end of the cable into the ETHERNET port on the CIP.
3. Plug the connector at the other end of the cable into the network device.

Figure 93: Ethernet Cable Connector



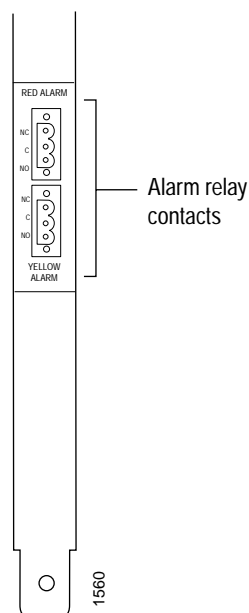
Replace Alarm Relay Cables

You can connect the routing node to an external alarm device so that conditions initiating a red or yellow alarm also trigger the external alarm device. Two sets of alarm relay contacts are located on the lower part of the CIP (see Figure 94). The upper set, labeled RED ALARM is triggered by a red alarm condition, and the lower set, labeled YELLOW ALARM, is triggered by a yellow alarm condition.

To replace alarm relay cables, follow this procedure:

1. Locate an appropriate length of 14–28 AWG wire to connect to the alarm relay contacts.
2. Loosen the small screws connecting the cable you are replacing to the contacts and remove the cable.
3. Attach the replacement cable to the contacts.
4. Tighten the small screws to secure the cable to the contacts.
5. For the RED ALARM contacts, connect the other end of the cable to the external device to be activated by a higher-priority alarm. For the YELLOW ALARM contacts, connect the other end of the cable to the external device to be activated by a lower-priority alarm.

Figure 94: Alarm Relay Contacts on the CIP



Replace Power Supply Cables

For information on the power supply cables and the grounding cables, see “Power and Grounding Cable Specifications” on page 54.

Maintain the PIC Cables

To maintain the PIC cables, follow these guidelines:

Use the cable management system located below the FPC card cage to support the cables and prevent them from dislodging or developing stress points.

Place excess cable out of the way in the cable management system, using fasteners on the cable loops to help the cables maintain their shape. Do not allow fastened loops of cable to dangle from the rack because this stresses the cable at the fastening point.

Keep the cable connectors clean and free of dust and other particles, which can cause drops in the received power level. Always inspect cables and clean them if necessary before connecting an interface.

Label all PIC cables to identify them, labeling both ends of the cable at the same time.

The following guidelines apply specifically to fiber-optic cable:

When you unplug a fiber-optic cable from a PIC, always place a rubber safety plug over the connector.

Keep fiber-optic cable connectors clean using an appropriate fiber-cleaning device, such as RIFOCES 945/946 Fiber Optic Connector Cleaning System.

Anchor fiber-optic cable to avoid stress on the connectors. When attaching fiber to a PIC, be sure to secure the fiber so it is not supporting its own weight as it dangles from the routing node. Never let fiber-optic cable hang free from the connector.

Avoid bending fiber-optic cable beyond its recommended bend radius. An arc smaller than a few inches can damage the cable and cause problems that are difficult to diagnose.

Frequent plugging and unplugging of fibers into or out of optical instruments, such as SONET or ATM analyzers, might damage the instruments, which are expensive to repair. We recommend attaching a short fiber extension to the optical equipment. Any wear and tear due to frequent plugging and unplugging is then absorbed by the extension, which is easy and inexpensive to replace.

Replace a PIC Cable

The PIC cables connect the PICs installed in the routing node to various network media (see Figure 95). You can remove and replace PIC cables without powering down the routing node.



If you do not have a rubber safety plug available, do not unplug a fiber-optic cable from a PIC. The safety plug keeps the connector clean and prevents accidental exposure to light that might be emitted, which could damage your eyes.



Do not look directly into the PICs installed in an FPC or into the ends of fiber-optic cable. Interfaces using SONET/SDH or ATM single-mode optical fiber contain laser light sources that can damage your eyes.

To replace a PIC cable, follow this procedure (see Figure 96):

1. Locate an appropriate cable to connect to the PIC (see table).
2. Have ready a rubber safety plug for each fiber-optic cable you are replacing.
3. Grasp the connector of the cable you are replacing and pull it straight out from the PIC.
4. If you are not immediately replacing a fiber-optic cable, insert the rubber safety plug into the PIC transceiver. When you are ready to replace the cable, remove the rubber safety plug.
5. Insert the connector of the replacement cable into the PIC transceiver.
6. Drape the cable over the bobbins of the cable management system below the FPC containing the PIC. Secure the cable so that it is not supporting its own weight. Place excess fiber out of the way in a neatly coiled loop in the cable management system, using fasteners to help maintain its shape.



Never let fiber-optic cable hang free from the connector. Do not allow fastened loops of cable to dangle, because this stresses the cable at the fastening point.

Figure 95: Fiber-Optic Cable Connector

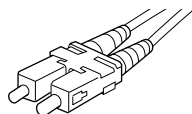
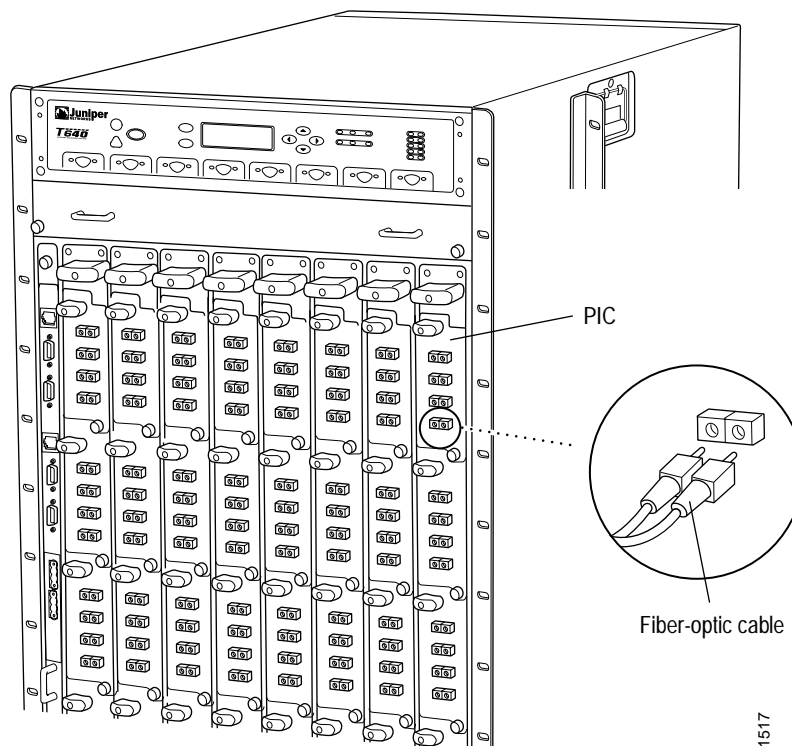


Figure 96: Connect Fiber-Optic Cable to a PIC



Verify That the PIC Cable Is Installed Correctly

Each port on each PIC has an LED, located on the PIC faceplate, that displays its status. PIC LEDs have four different states, which are described in table. If the cable is installed correctly and the PIC is online, the PIC LED lights green.

You can also check the status of each port on each PIC using the CLI command:

```
user@host> show chassis fpc pic-status fpc-slot
```

For more information about using the CLI, see the JUNOS Internet software manuals.

